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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/699,689

11/04/2003

Jyrki Mattila

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32294

7590

10/05/2009

SQUIRE, SANDERS & DEMPSEY L.L.P.

8000 TOWERS CRESCENT DRIVE

14TH FLOOR

VIENNA, VA 22182-6212

EXAMINER

LAM, DUNG LE

ART UNIT

PAPER NUMBER

2617

MAIL DATE

DELIVERY MODE

10/05/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/699,689	MATTILA, JYRKI	
	Examiner	Art Unit	
	DUNG LAM	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-11 and 14-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-11 and 14-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1-28 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 1-28, the independent claims call for "vary the **total** capacity". However, there seems to be no support found in the specification that states "a **total** capacity" being variable.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims **1-2, 5-11, 14-21, 23-25 and 27-28** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Schilling** (US Patent Number 6128328) in view of **Otsuka** (US 6741859)

2. Regarding **claim 1**, Schilling teaches in Figure 5 an apparatus including at least one cell (A, B, C, Fig. 5), said cell comprising:

a defining unit configured to define a capacity layer for a cell of a communications system, the cell comprising a coverage layer (A, B, C, Fig. 5) defining having a fixed coverage are provided by at least one carrier,

the capacity layer comprising at least one carrier (by definition, a cell has a fixed coverage area provided by at least one carrier. The concept of having a fixed coverage that is defined by the range that the broadcast channel can reach is also admitted in the current application's background, para. 6, 7, 28 of applicant's specification; and Schilling's teaching C7 L29-30) coverage area (Col. 3, lines 40-57),

each carrier in the capacity layer having a dynamic variable coverage area (Fig. 5A further comprises of multiple bands of frequencies, e.g. F1, F2, F3, F4, F5, F6; alternatively, Figs. 6 and 7; C9 L36-67), to dynamically vary the total capacity of the cell (Col. 3, lines 36-39, Col. 8, lines 21-28 and Col 11 lines 25-55; alternatively, C12 L54-64; C12 L58-65 sector size is adjustable to accommodate from a capacity of zero to 80 users for each sector) which means more carriers are used to accommodate more users.

Although, there's no explicit teaching that the number of carriers is increase in order to increase the capacity, it is known in the art that one way to accommodate more users is to increase the number of channels. In an analogous art, **Otsuka** teaches the

concept of a defining unit configured to adjust the number of channels/carriers to accommodate the current utilization of the cell (As the number of mobiles using radio frequency RF1 are approaching an upper limit, transmission using RF2 is commenced thereby increasing the number of carriers being used and increasing the capacity, C16 L15-67; C17 L8-27). Therefore, one skill in the art at the time of the invention would see that Schilling's teaching of the adjusting of the sectors would have an adjusting means to adjust the number of carriers in order to accommodate more users/traffic.

3. Regarding **claim 2**, Schilling and Otsuka teach all the limitations according to claim 1. Schilling's teachings disclose a power level of a carrier in a downlink of the coverage layer defines the coverage of said at least one cell (a base station coupled with base-power means to radiates signal over a coverage area from the base station to a remote, Col. 3, lines 40-57).

4. Regarding **claim 5**, Schilling and Otsuka teach all the limitations according to claim 1. Schilling further teaches a power level of at least one carrier of said number of carriers in the capacity layer is variable (Col. 10, line 19-21 and Col. 11, lines 51-65).

5. Regarding **claim 6**, Schilling and Otsuka teach all the limitations according to claim 1. Schilling teaches that a total transmission power for a downlink is divided between the coverage layer and the capacity layer of said at least one cell in dependence on the coverage and capacity requirement of the system (Col. 11, lines 30-65).

6. Regarding **claim 7**, Schilling and Otsuka teach all the limitations according to claim 6. Schilling further teaches power available for at least one of the coverage layer and the capacity layer is divided between carriers in the coverage layer and the capacity layer (Col. 11, lines 30-65).

7. Regarding **claim 8**, Schilling and Otsuka teach all the limitations according to claim 1. Schilling teaches the cellular communication system comprises a multi-carrier system (6 directional antenna 109, Col. 7, lines 22-29).

8. Regarding **claim 9**, Schilling and Otsuka teach all the limitations according to claim 1. Schilling further teaches the cellular communication system comprises a single carrier system (6 omni-directional antenna 109, Col. 7, lines 22-29).

9. Regarding **claims 10-11, 14-18**, they are method claims corresponding to the apparatus claims 1-2, 5-9. Therefore, they are rejected for the same reasons as claims 1-2, 5-9.

Regarding **claim 19**, Schilling and Otsuka teach an apparatus comprising:
at least one transmitter unit configured to transmit a first carrier at a predetermined power level thereby defining a coverage area of a cell of a communication system (Col. 3, lines 40-57 and background of the present invention),

and further configured to transmit a variable number of further carriers thereby defining, at least in part, a dynamically variable total capacity of the cell (Col. 3, lines 36-39, Col. 8, lines 21-28 and Col 11 lines 25-55, Col. 8 lines 31-35 and Col. 10, lines 25-26, Col. 12 Line 55 - Col 13 Line 26 Col. 13 In 65- Col. 14 In 8; alternatively, Figs. 6 and 7, C9 L36-67), to dynamically vary the capacity of the cell (Col. 3, lines 36-39, Col. 8, lines 21-28 and Col 11 lines 25-55; alternatively, C12 L54-64; C1258-65 sector size is adjustable to accommodate from zero to 80 users) which means more carriers are used to accommodate more users.

Although, there's no explicit teaching that the number of carriers is increase in order to increase the capacity, it known in the art that one way to one way to accommodate more users is to increase the number of channels. In an analogous art, Otsuka teaches the concept of adjusting the number of channels to accommodate the current utilization of the cell (variable number of users associated with each sector, C11 L23-38). Therefore, one skill in the art at the time of the invention would see that Schilling's teaching of the adjusting of the sectors would have some adjusting means to adjust the number of channels/carriers in order to accommodate the unpredictable utilization of the sector.

10. Regarding **claim 20**, Schilling and Otsuka teach all the limitations according to claim 19. Schilling further teaches power levels of a variable number of carriers depends upon a proximity of a mobile station associated with a carrier to a base station (Col. 10, lines 25-27).

11. Regarding **claim 21**, Schilling and Otsuka teach all the limitations according to claim 20. Schilling further teaches a total power of the variable number of carriers comprises a predetermined power, and wherein a portion of said predetermined power among the variable number of carriers is determined by a total number of carriers (Col. 11, lines 30-65).

12. Regarding **claim 23**, Schilling and Otsuka teach an apparatus according to claim 5, wherein the said power level is variable in dependence on a position of a mobile station (Col. 10, lines 25-27).

13. Regarding **claim 24**, Schilling and Otsuka teach a method according to claim 14, further comprising varying the power level of a carrier in the capacity layer in dependence on a position of a mobile station (Col. 10, lines 25-27).

14. Regarding claims **25, 27-28**, they are apparatus claims that have similar limitations as claim 1. They are rejected for the same reasons as claim 1.

15. Claims **22** is rejected under 35 U.S.C. 103(a) as being unpatentable by **Schilling and Otsuka** in view of **Lawrence** (US Publication Number 2004/0203837).

16. Regarding **claim 22**, Schilling and Otsuka teach all the limitations according to claim 21. Schilling further teaches a second transmitting means for transmitting a variable number of users. However, he fails to teach that the power allocated to at least one carrier is configured to reduce in response to an increase in the variable number of

carriers. In an analogous art, Lawrence teaches that the power level is adjusted according to the subscriber density and demand in a particular region (para. 2).

Therefore, it would have been obvious for one of ordinary skill in the art the time of the invention to modify Schilling's teaching to include an adjustable power level in accordance to the capacity of the cell to maximize the signal quality.

17. Claims **1, 10, 19, 25, 27-28** are further rejected under 35 U.S.C. 103(a) as being unpatentable over **Schilling** (US Patent Number 6128328) in view of **Mujtaba** (U6 950678)

18. Regarding **claim 1**, Schilling teaches in Figure 5 an apparatus including at least one cell (A, B, C, Fig. 5), said cell comprising:

a defining unit configured to define a capacity layer for a cell of a communications system, the cell comprising a coverage layer (A, B, C, Fig. 5) defining having a fixed coverage are provided by at least one carrier,

the capacity layer comprising at least one carrier (by definition, a cell has a fixed coverage area provided by at least one carrier. The concept of having a fixed coverage that is defined by the range that the broadcast channel can reach is also admitted in the current application's background, para. 6, 7, 28 of applicant's specification; and Schilling's teaching C7 L29-30) coverage area (Col. 3, lines 40-57),

each carrier in the capacity layer having a dynamic variable coverage area (Fig. 5A further comprises of multiple bands of frequencies, e.g. F1, F2, F3, F4, F5, F6; alternatively, Figs. 6 and 7; C9 L36-67), to dynamically vary the total capacity of the cell (Col. 3, lines 36-39, Col. 8, lines 21-28 and Col 11 lines 25-55; alternatively, C12 L54-64; C12 L58-65 sector size is adjustable to accommodate from a capacity of zero to 80

users for each sector) which means more carriers are used to accommodate more users.

Although, there's no explicit teaching that the number of carriers is increase in order to increase the capacity, it known in the art that one way to one way to accommodate more users is to increase the number of channels. In an analogous art, Mujtaba teaches the concept of adjusting the number of channels to accommodate the current utilization of the cell and change the capacity of the cell (C1). Therefore, one skill in the art at the time of the invention would combine Schilling's teaching of the adjusting of the sectors with Mujtaba's adjusting means to adjust the number of channels/carriers in order to quickly accommodate the unpredictable utilization of the cell.

Regarding claims 1, 10, 19, 25, 27-28, they are apparatus and computer readable medium claims which correspond to claim 1 and thus rejected for the same reasons as claim 1.

Response to Arguments

Applicant's arguments filed 6/17/09 have been fully considered but they are not persuasive.

Applicant argues that

The Office Action must provide reasons why a person skilled in the art would not have recognized that the inventor was in possession of the invention as claimed in view of the disclosure of the application as filed.

In the instant case, the Applicant clearly had **possession** of the subject matter in question. For example, paragraphs [0031], [0033], [0034], [0036], [0063], and [0078] of the specification clearly supports the subject matter in question, i.e., "vary the total capacity". In particular, the specification describes that carriers can be added or removed from the cell, thereby varying the capacity of the cell. See Specification, paragraph [0031]. In order to accommodate more carriers in the network, the coverage of certain

carders may be limited. See Specification, paragraph [0033]. CCR parameters can be easily mapped to a table which can be utilized dynamically for the network. See

The examiner respectfully disagrees. By definition, capacity is the maximum amount or number that can be contained. Although it is true that there is support for the number of carriers being used is variable and can be changed by adding or removing the carriers, there is a limit on the maximum carriers that can be used or the total capacity is fixed. A system can only service a set maximum capacity before it becomes overloaded and congested. If it is really possible to have a variable "total" capacity, meaning the ceiling/upper limit number of carriers of a cell can be increased, then the system would be increasing forever and not have any overloading problem and every service provider would very happy. Thus the examiner believes that there's support for the varying number of carriers but there's no support for the variable "total" capacity since varying number of carriers is not the same as varying the total capacity.

Applicant argues that Otsuka fails to cure the missing limitation of "the defining unit is configured to vary the number of carriers in the capacity layer" because "one of ordinary skill in the art would be steered away from relying upon Otsuka et al., because Otsuka et al. discusses the power of the mobile stations and not vary the number of".

The examiner respectfully disagrees. The examiner notes that this is a just general allegation of teach away without providing any substantive reasoning why it teaches away. Otsuka clearly teaches the increasing of the carriers as the number of mobiles using the first radio frequency RF1 are approaching an upper limit, transmission

using RF2 is commenced thereby increasing the number of carriers being used and increasing the capacity (C16 L15-67; C17 L8-27).

Applicant argues that Otsuka has no bearing as to how the total capacity layer of the cell is varied. The examiner respectfully disagrees. As addressed in immediate previous paragraph, Otsuka clearly teaches that when the first set of frequencies RF1 is approaching a limit, more frequencies from RF2 frequency set becomes available. Thus, having the new set of RF2 frequencies available or being switched on clearly increases and varies the capacity of the cell.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUNG LAM whose telephone number is (571) 272-6497. The examiner can normally be reached on M - F 9 - 5:30 pm, Every Other Friday Off.

Art Unit: 2617

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Harper can be reached on (571) 272-7605. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/VINCENT P. HARPER/

Supervisory Patent Examiner, Art Unit 2617